

Re PCT/PTO 19 MAY 2005

To:

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JD/KKS

PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY

(PCT Rule 66)

Date of mailing
(day/month/year)

28-10-2004

Applicant's or agent's file reference

BP105093/JJO

REPLY DUE

within 60 days from 27/12-04
the above date of mailing

International application No.

PCT/FI 2002/000954

International filing date (day/month/year)

27.11.2002

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC

G11B 7/08, G11B 7/12, G11B 7/135

Applicant

Nokia Corporation et al

1. ☐ The written opinion established by the International Searching Authority:

☐ is

☐ is not

considered to be a written opinion of the International Preliminary Examining Authority.

2. This first (first, etc.) opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis.
For an informal communication with the examiner, see Rule 66.6.
For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is:

27.03.2005

Name and mailing address of the IPEA/SE

Patent- och registreringsverket

Box 5055

S-102 42 STOCKHOLM

Facsimile No. 46 8 667 72 88

Form PCT/IPEA/408 (cover sheet) (January 2004)

Authorized officer

Bo Gustavsson/ELY

Telephone No. 46 8 782 25 00

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."):

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages _____ as amended (together with any statement) under Article 19
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to the sequence listing (specify): _____

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to the sequence listing (specify): _____

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims

Claims

Inventive step (IS)

Claims

Claims

Industrial applicability (IA)

Claims

Claims

1-12, 17-25, 27-37, 42-48

2. Citations and explanations:

The general inventive concept of the invention has been interpreted as a method and a device for writing and/or reading digital information on/from an optical storage medium, the device comprising a light source emitting a first light beam used for reading and a second light beam used for writing data information. The light beams are directed towards the optical storage medium using an optical system and reflected therefrom towards detector arrangements for reading data and/or for tracking/focusing purposes. An access unit being e.g. a swing arm carries the optical system and optionally the light source and/or detector arrangement. According to the main claim, the light beams are directed transversely towards the data tracks of the optical storage medium (see also Box VIII).

Reference is made to the following documents:

D1: US 6 215 755 B1

D2: US 5 771 219 A

D3: US 4 253 723 A

D4: US 4 157 568 A

D5: WO 98 09 392 A2

D6: US 6 278 682 B1

The document D1 is regarded as being the closest prior art to the subject-matter of claims 1 and 27, and discloses an optical data storage device comprising a read/write arm, drive means for positioning the arm in three dimensions, at least one light source generating a read/write light beam and an optical storage medium. The device also comprises necessary tracking and focusing means for controlling the beam position and focus (see column 6, lines 8-31).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The subject-matter of claims 1 and 27 therefore differs from this known system in that there are two light beams and that the light beams are guided transversely towards the data tracks (see also Box VIII for interpretation).

However, as seen from D1 means and methods for tracking and focusing, well-known to the skilled person, are referenced to. According to such methods (see e.g. D2-D6), one or more tracking light beams are guided towards the data tracks, reflected therefrom and directed towards a detector arrangement generating required control signals.

The difference therefore merely relates to guiding the reading/tracking/focusing light beam transversal to the data tracks.

The problem to be solved by the present invention may therefore be regarded as providing an optical storage device with an access unit having separate write and read beams, wherein simple focusing and tracking capability is accomplished by separating the illuminating and reflected light beams by guiding the illuminating beam transversely towards the data tracks.

As seen from D4, wherein a method and an apparatus for optically reproducing a storage medium is described, the use of separate beams for reading (and/or writing) and tracking/focusing is known. According to D4, the read beam is directed perpendicular to the data tracks while the tracking/focusing beam is directed transversely towards the tracks and reflected back to a detector arrangement for controlling the focus of the read beam.

According to D2 (see column 14, line 35-column 15, line 42, figures 12 and 13), an optical recording/reproducing device is known in which three light beams are directed towards an optical storage medium, two beams of which are used for tracking and focusing and one beam is used for writing and/or reading. According to the shown embodiment, the beams are directed transversely towards the data tracks on the medium and reflected therefrom towards a detector arrangement.

From D3 an apparatus for optically reading information from a record carrier is known.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

Here, a single light beam is used for reading and focusing, the beam being guided transversely towards the data tracks.

In view of the statements made in D1 relating to known method for tracking and focusing, a person skilled in the art would not hesitate to use the teachings of any of D2-D4 to accomplish an optical recording/reproducing device as claimed in claim 1 or a method as claimed in claim 27.

The invention according to claims 1 and 27 therefore lacks inventive step.

The invention as claimed in claims 2-6 and 28-32 only relate to details in the positioning and focusing of the light beams, such details being obvious for a skilled person in view of D2-D4.

Therefore, the invention as described in claims 2-6 and 28-32 lacks inventive step.

As mentioned in Box VIII, the embodiments as specified in claims 7 and 33 do not correspond with the embodiment as specified in claims 1 and 27 respectively. However, as seen from D2 showing the use of three beams being directed transversely towards the data tracks and as seen from D4, showing the use of two beams, one being directed perpendicular to the tracks and the other being directed transversely thereto, none of the embodiments are considered to involve an inventive step.

Optical systems for guiding the beams from a light source to the data medium and from the data medium to a detector arrangement using reflective, refractive or diffractive elements or any combinations thereof are well known to the person skilled in the art, as seen from any of D1-D6. Such optical systems may be used irrespective of the number of light beams used, se e.g. D2-D4.

The claimed invention as described in claims 10, 11, 17, 18, 35, 36, 42 and 43 therefore lacks inventive step.

As also mentioned in Box VIII, the embodiments according to claims 12 and 37 do not correspond with the embodiment as specified in claims 1 and 27 (35) respectively.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

However, for the same reasons as used above in connection with claims 7 and 33, the embodiments as specified in claims 12 and 37 lack inventive step.

The features of dependent claims 19-21 and 44-46 relating to a detector arrangement have already been employed for the same purpose in many similar devices, see e.g. documents D2 and D6. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a device according to document D1, thereby arriving at a device or a method according to claims 19-21 and 44-46.

The claimed invention according to claims 19-21 and 44-46 therefore lacks inventive step.

Dependent claims 8, 22-25, 34, 47 and 48 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:

Claims 8 and 34 merely relates to a device and a method wherein two light beams are used, one of which is used for writing information and the other used for reading information. However, in view of document D1 together with any of documents D2 or D4 these features must be considered to be obvious for a skilled person.

The feature of claim 22 relating to a diffractive optical element in front of the detector has already been employed for the same purpose in e.g. D3. It would therefore be obvious to the person skilled in the art, to apply this features with corresponding effect to a device according to document D1, thereby arriving at a device according to claim 22.

The use of a light guide (optical fibre) for guiding the light beam or beams along the access unit is as such already known from D5. To employ this solution in a device according to D1 must be considered to be an obvious step for a skilled person.

Claims 24, 25, 47 and 48 relating to the access unit being an arm unit, a sledge unit or a combination thereof, only refers to constructional details being obvious for a skilled person, in view of any of D1 and D4-D6.

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Using the definition of the term "transversal" as made in the description (interpreted as meaning "sideways", see page 2, lines 27-31), the embodiments according to the dependent claims 7 and 12 are contradictory to the embodiment as specified in claim 1. According to claim 1, first and second light beams are guided "transversal towards data tracks", while according to claims 7 and 12 the second light beam is guided "perpendicular to said data tracks".

The same condition applies for the embodiments as specified in the dependent claims 33 and 37, depending on claim 27.

However, the description seems to indicate that the embodiments shown in claims 7, 12, 33 and 37 correspond better with the general inventive idea than the embodiment shown in the main claim, see e.g. description page 3, lines 28-34 and page 4, lines 11-18.

Therefore, the examination is based on the following concept:

An optical recording/reproducing method and device comprising at least one light source generating a first light beam used for reading information and guided transversely towards the data tracks and a second light beam used for writing information and guided perpendicular towards the data tracks, the device comprising an access unit positioned in three dimensions. The reflected beam or beams are also used for tracking and/or focusing purposes.